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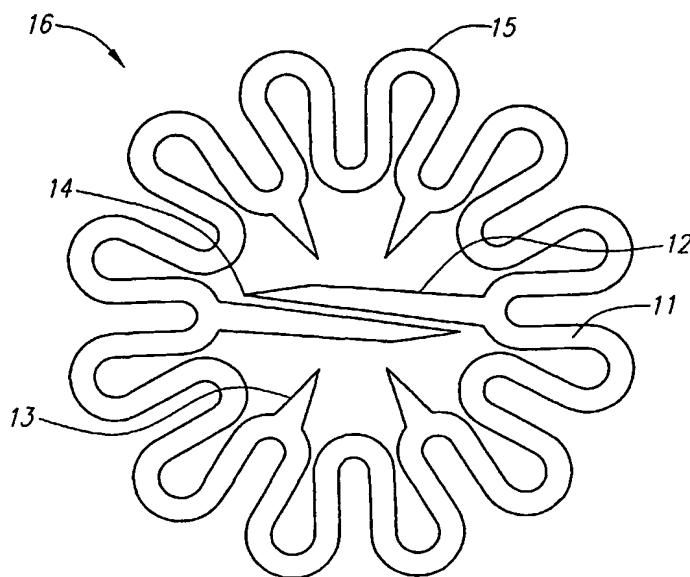
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(54) Title: METHODS FOR MANUFACTURING A CLIP AND CLIP



(57) Abstract: The present invention relates to a method of making clips which can be used to engage body tissue for the purpose of closing wounds. Such clips are generally annular in shape and have radially inwardly extending tines. The present invention first forms a precursor which, in one embodiment, has the tines extending radially outwardly from the annular body and then forms the clip by inverting the precursor such that the tines extend radially inwardly. In an alternate embodiment, the precursor is formed with an over-sized lateral dimension and then compressed inwardly to bring the tines closer together and to reduce the lateral dimension of the precursor. It is preferred to manufacture such clips from a superelastic alloy such as nickel-titanium, in which case the inverted or compressed precursor must be heated and quenched to heat set the clip in its final shape.

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2002/188318 A1 (ALDRICH WILLIAM N ET AL) 12 December 2002 (2002-12-12) paragraph '0042!; figure 1a paragraph '0050! - paragraph '0056!; figures 2a-2c	1-4, 7-10,12, 14-16
A	US 2002/082641 A1 (ALDRICH WILLIAM N ET AL) 27 June 2002 (2002-06-27) paragraph '0040! - paragraph '0042!; figures 1a-1c paragraph '0050!; figure 6a paragraph '0069!; figure 12 ----- -/--	1-3, 8-10, 14-16

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PCT/US 03/40812

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR 2 722 975 A (DYNAMIQUE SANTE SARL) 2 February 1996 (1996-02-02) page 3, line 28 - page 4, line 9; figures 1-3	1,8, 14-16
A	----- US 4 665 906 A (JERVIS JAMES E) 19 May 1987 (1987-05-19) cited in the application the whole document	1,8, 14-16
A	----- WO 00/56227 A (KEREN DVIR ; KILEMNIK IDO (IL); LOSHAKOVE AMIR (IL); BY PASS INC (US)) 28 September 2000 (2000-09-28) abstract; figure 1a	1,8, 14-16

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PT/US 03/40812

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2002188318 A1	12-12-2002	US 2002082641 A1	27-06-2002
		WO 03071955 A2	04-09-2003
		US 2004039414 A1	26-02-2004
		US 2003195561 A1	16-10-2003
		US 2004009289 A1	15-01-2004
		US 2004010285 A1	15-01-2004
		US 2004108879 A1	10-06-2004
		US 2004073236 A1	15-04-2004
		AU 2018602 A	18-06-2002
		CA 2431573 A1	13-06-2002
		EP 1339327 A2	03-09-2003
		JP 2004514529 T	20-05-2004
		WO 0245593 A2	13-06-2002
US 2002082641 A1	27-06-2002	AU 2018602 A	18-06-2002
		CA 2431573 A1	13-06-2002
		EP 1339327 A2	03-09-2003
		JP 2004514529 T	20-05-2004
		WO 0245593 A2	13-06-2002
		US 2002188318 A1	12-12-2002
		US 2004039414 A1	26-02-2004
		US 2003195561 A1	16-10-2003
		US 2004009289 A1	15-01-2004
		US 2004010285 A1	15-01-2004
		US 2004108879 A1	10-06-2004
		US 2004073236 A1	15-04-2004
FR 2722975 A	02-02-1996	FR 2722975 A1	02-02-1996
US 4665906 A	19-05-1987	US 6306141 B1	23-10-2001
		US 5190546 A	02-03-1993
		US 5597378 A	28-01-1997
		AT 48523 T	15-12-1989
		CA 1246956 A1	20-12-1988
		DE 3480686 D1	18-01-1990
		EP 0145166 A2	19-06-1985
		JP 2543328 B2	16-10-1996
		JP 7067951 A	14-03-1995
		JP 2715377 B2	18-02-1998
		JP 60100956 A	04-06-1985
		US 5067957 A	26-11-1991
WO 0056227 A	28-09-2000	AU 1583500 A	09-10-2000
		AU 3313600 A	09-10-2000
		AU 769269 B2	22-01-2004
		AU 3313800 A	09-10-2000
		AU 7552500 A	18-06-2001
		AU 7552700 A	18-06-2001
		BR 0009172 A	18-12-2001
		BR 0016247 A	27-08-2002
		CA 2366708 A1	28-09-2000
		CA 2393486 A1	14-06-2001
		CA 2393508 A1	14-06-2001
		CN 1353594 T	12-06-2002
		EP 1171044 A1	16-01-2002
		EP 1237485 A2	11-09-2002
		EP 1259169 A2	27-11-2002
		WO 0056227 A1	28-09-2000

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 03/40812

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 0056227 A		WO 0056228 A1	28-09-2000
		WO 0141623 A2	14-06-2001
		WO 0141624 A2	14-06-2001
		JP 2002538926 T	19-11-2002
		JP 2003515416 T	07-05-2003
		JP 2004513670 T	13-05-2004
		NZ 514745 A	29-08-2003
		US 2004073247 A1	15-04-2004
		AU 768923 B2	08-01-2004
		AU 1583100 A	09-10-2000
		AU 4056499 A	20-12-1999
		BR 9917217 A	26-02-2002
		CA 2366703 A1	28-09-2000
		CN 1352539 T	05-06-2002
		EP 1085837 A1	28-03-2001
		EP 1171042 A1	16-01-2002
		WO 0056226 A1	28-09-2000
		WO 0056223 A1	28-09-2000
		JP 2002538925 T	19-11-2002
		NZ 514744 A	30-01-2004
		NZ 529757 A	19-12-2003
		AU 768103 B2	04-12-2003
		AU 3953599 A	20-12-1999
		CA 2333010 A1	09-12-1999
		EP 1083835 A1	21-03-2001
		JP 2002516696 T	11-06-2002